

dietary, in which the protein content is only one-half to one-third that contained in the ordinary standard dietary, will maintain the body in a satisfactory state of health, and that an ordinary dietary does give some excess which is injurious to health. At the same time, it is recognised that further observations are required before we can accept Chittenden's results as giving a standard for universal application.

Milk and milk products and eggs are next considered, and then animal foods and their composition. The information given is both varied and voluminous; for example, the influence of different breeds of cows on milk production is considered, and the usual Scotch method of cutting up an ox is illustrated. Full tables are given of the composition, constituents, and nutritive values of all foods—flesh, farinaceous, fruit, vegetable, and mineral. The condiments and alcohol are also considered. As regards that vexed question, the use of alcohol, the author expresses the opinion, with which we fully concur, that

"while the use of alcohol in the treatment of disease is now very restricted, there is no question as to its undoubted value in the treatment of certain diseases, more especially in their critical stages. . . . We must recognise that alcohol is a very valuable therapeutic agent in the treatment of some diseased conditions."

The dietetic treatment of disease is treated very fully and completely. Alternative views are stated with fairness and in a broad-minded manner. Not the least valuable parts of the book are the complete cookery recipes which are included; in this respect the work becomes one of very real practical worth and supplies a decided want. For them the author expresses much indebtedness to his wife.

We have read the book with great interest, and can recommend it as a complete and practical epitome for the student of dietetics, and one which should be of much value to every practising physician.

R. T. H.

FOREST MANAGEMENT.

Schlich's Manual of Forestry. By Sir Wm. Schlich, K.C.I.E., F.R.S. Vol. iii., Forest Management. Fourth edition, revised. Pp. x+403. (London: Bradbury, Agnew and Co., Ltd., 1911.) Price 9s. net.

THE fourth edition of the third volume of the above "Manual of Forestry" contains somewhat more matter than its predecessor. The volume is divided into four parts, in which the various departments of forest management are dealt with. A strong feature of the new and revised edition is the number of practical examples given to illustrate the use and application of the various formulæ.

Part i. deals with forest mensuration. A concise description of the various measuring instruments is given and also the procedure generally followed and the formulæ used in calculating the volume of single trees and whole woods. Determination of age and increment are also dealt with. This subject is treated of first, as it naturally forms the foundation of forest management and leads up to what follows in the succeeding parts.

Part ii.—forest valuation—is devoted to the consideration of forest capital and the returns yielded therefrom. The author has been very successful in his method of presenting and explaining this difficult and intricate subject to the reader. He starts by analysing the forest value into its several components, such as the forest soil, the growing stock, the forest as a whole, and the rental derivable from the soil or the forest as a whole. In order to deal with this subject fundamentally the author gives a preliminary chapter divided into four sections. Section 1 shows how the value of property is determined; section 2 shows how the rate of interest applicable to the forest industry may be fixed; section 3 contains the formulæ necessary for calculating with compound interest; and section 4 contains an explanation of the methods of estimating receipts and expenses. With these preliminary matters made plain, he proceeds in the next four chapters (occupying twenty-six pages) to deal with valuation of forest soil, growing stock, whole woods or forests, and the determination of the rental of forests. Chapter vi., which concludes this part, treats of the methods of calculating the financial results of forestry. This subject is usually dealt with separately under the heading "Forest Statistics," but it has been here condensed in a perfectly efficient manner into about sixteen pages as a logical appendage to forest valuation.

Part iii.—the foundations of forest management—likewise contains six chapters. A very interesting introduction is prefixed which sets forth the aims and objects of systematic forest management and forest working plans. The succeeding five chapters deal respectively with increment, rotation, normal age, classes, normal growing stock, and normal yield, while in the final chapter the relation between increment, growing stock, and yield is discussed.

Part iv. explains the preparation of forest working plans. This is the direct sequel and outcome of the previous part. In preparing his working plans the forester aims at bringing every part of his woods and forests into a state as near theoretical perfection as possible. His endeavour is to regulate and bring into a normal condition the increment, rotation, age-classes, growing stock, yield, &c. This necessitates an experienced survey and a very critical knowledge of the forest and its environment. The references in this part to pages and chapters of the previous volumes of the manual indicate in themselves that the forester must be thoroughly acquainted with the fundamentals of silviculture before he can attempt to construct a rational working plan which is possibly the most important, and at the same time difficult, thing to do in the whole art of forestry, but, as has been indicated, the author has so clearly and thoroughly explained the fundamentals that the intricacies of the working plan may be easily understood. At the end of the book are given appendices containing many useful tables, such as tables for measurement, compound interest, and yield, working-plan schedules, and an index.

The author is to be congratulated upon the production of this volume, which can be warmly recommended to all students of forestry, foresters, and

forest owners. Its value at present is great, and it will become greater in direct proportion to the spread of scientific forestry training and the extended afforestation of suitable lands in this country.

A. W. B.

THE MECHANICS OF THE SOCIAL BODY.

Mécanique Sociale. By Prof. Sp. C. Haret. Pp. iv+256. (Paris: Gauthier-Villars; Bucarest: Ch. Göbl, 1910.) Price 5 francs.

THIS volume represents an attempt by Prof. Haret to apply the laws and methods of mechanics to the study of sociology. The condition of an individual at any point of time, he argues, may be conceived as indicated (at least, in its principal aspects) by the magnitudes of three different factors—his economic possessions, his intellectual state, and his moral state. Supposing these three quantities to be measurable, the condition of the given individual at the given time can be represented by the coordinates of a point P, with reference to three rectangular axes OX, OY, OZ, which define his position in the "social space." If these coordinates do not change, the individual is in a state of "social rest"; when they vary, he is in a state of "social movement." Any cause which may produce or vary a social movement is termed a "social force," and any such force may be represented by a vector in the social space. Two individuals are said to possess the same "social mass" when the same social force, applied for the same time, produces the same movement. With such definitions, it is argued, all the ordinary laws of statics and dynamics apply.

That the idea is a novel one, possessing some attractiveness, we are willing to concede. The scheme of coordinates chosen also emphasises the fact, occasionally forgotten in some statistical investigations, that economic, moral, and intellectual changes are not (to use the common phrase) on the same plane, and index-numbers which measure changes in such diverse quantities should not be averaged together. But that the laws of mechanics apply to a system of material points representing, in the way described, the condition of a given population, does not seem to be proved.

The very difficulty that would surely occur to almost any reader at the commencement is ignored, and this, it seems to the reviewer, is the source of all subsequent difficulties. The three axes chosen do not represent quantities of the same kind or dimensions, but quantities quite different in kind. The mere representation of movement in the "social space," the magnitudes and directions of velocities and accelerations, will all depend on the three arbitrary scales chosen. Forces parallel to the three axes do not differ merely in direction but in kind: we cannot speak of forces which are equal in magnitude but different in direction until the three scales are defined. That the ratio of the masses of two individuals is not the same for all forces is admitted: for a given force in one direction the acceleration produced in A may be greater than that produced in B; for a force in another direction the contrary may be the case.

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The "economic," "moral," and "intellectual masses" of the individual are, in fact, like "economic," "moral," and "intellectual forces," totally different things. Prof. Haret proposes to evade the difficulty by regarding the forces as varying instead of the masses, but this is surely inadmissible. If A and B move, say, with the same accelerations when subjected to the same economic force, but with different accelerations when subjected to the same moral force, it is impossible to say that one and the same force is, in the latter case, different for the two individuals merely in order to avoid admitting that their "masses" are different.

It is with regret that the reviewer finds himself unable to accept the author's thesis, for undeniably it possesses a certain picturesque suggestiveness. Economic forces, for example, are often of a more or less periodic character, and seem to be accompanied by moral forces which are also periodic. If these got a quarter of a period out of phase with each other, the social body would start revolving round its intellectual axis . . . What would happen? G. U. Y.

THE GUM-TREES OF AUSTRALIA.

A Critical Revision of the Genus Eucalyptus. By J. H. Maiden. Vol ii., part i.—part xi., of the complete work. Pp. iv+59+iv plates. Vol. ii., part ii.—part xii of the complete work. Pp. iii+61-100+iv plates. Published by authority of the Government of the State of New South Wales. (Sydney: W. A. Gullick, Government Printer, 1910.) Price 2s. 6d. each part.

THE first part of this comprehensive work was issued in 1903, and it is wholly devoted to the description and illustration of *Eucalyptus pilularis*. Parts two and three appeared in the same year, each dealing with only one species, *E. obliqua* and *E. calycogona* respectively. When reviewing those early parts, each of which contains four plates of figures, we ventured to suggest that Mr. Maiden had commenced with a fullness of detail that might imperil the completion of the work, considering that the genus comprises many more than a hundred species. Two species, *E. incrassata* and *E. foecunda*, are described in the fourth part (1904), and illustrated by no fewer than twelve plates. At this rate the probabilities of completion seemed to be exceedingly remote, and the author apparently realised the fact, for succeeding parts have included successively a greater number of species; parts one and two of the second volume containing ten species each, illustrated by four plates.

It is almost superfluous to mention that the genus *Eucalyptus* is the most important commercially in the vegetation of Australia, and its elucidation is correspondingly desirable. Some of the species are very abundant and widely dispersed, whilst others are very rare and local, and consequently liable to extinction.

At least two other botanists—Bentham and Mueller—have dealt with the whole genus before Maiden took up the work, and Mueller also possessed field knowledge. But one generation of botanists by no means mastered all the details of classification of this